

CLAIM AMENDMENTS

1 1. (currently amended) (original) Method for measuring
2 the polarization mode dispersion of an optical fiber applying an
3 optical signal to a first end of the fiber [{{11}}] and coupling a
4 second end of the fiber [{{111}}] to an interferometer [{{25}}],
5 said method comprising the step of:

6 generating by means of said interferometer [{{25}}] at
7 least one interferogram comprising at least a central peak and two
8 side lobes having a determined information content; and being
9 characterized by the steps of

10 processing said interferogram in such a way as to measure
11 the information content of at least one of said two side lobes;
12 and

13 determining the polarization mode dispersion of the fiber
14 associating to said measurement of said information content a
15 probability density function representative of the polarization
16 mode dispersion [{{PMD}}] of the fiber in the form of differential
17 group delay.

1 2. (currently amended) The method as claimed in claim 1
2 characterized in that said step of determining the polarization
3 mode dispersion comprises the step of

4 computing the deconvolution of said at least one side
5 lobe with said central peak so that said deconvolution corresponds

6 to the probability density of the differential group delay deter-
7 mined by the PMD of the fiber.

1 3. (currently amended) The method as claimed in claim 1
2 [[or 2]] characterized by the additional step of
3 determining an average of measurements of said informa-
4 tion content whereto said probability density is to be associated.

1 4. (currently amended) The method as claimed ~~in any of~~
2 ~~the previous claims~~ claim 1, characterized in that said information
3 content comprises a single numeric value determined by the position
4 of said at least one side lobe in the interferogram.

1 5. (currently amended) The method as claimed in ~~claims~~
2 ~~1 through 3~~ claim 1 characterized in that said information content
3 comprises a plurality of values determined by the position of said
4 at least one side lobe in the interferogram.

1 6. (currently amended) A computer product able to be
2 directly loaded in the internal memory of an electronic measuring
3 device and comprising portions of software code to implement the
4 method as claimed in ~~any of the claims from 1 to 5~~ claim 1 when the
5 product is run on said electronic device.

1 7. (currently amended) A system for measuring the
2 polarization mode dispersion of an optical fiber, comprising
3 an optical source [[(21)]] able to generate an optical
4 signal to be injected into the fiber [[(11)]] ;
5 an interferometer [[(25)]] associated to the fiber and
6 able to generate an interferogram comprising at least a central
7 peak and two side lobes having a determined information content;
8 characterized by
9 a device [[(27)]] connected to said interferometer and
10 able to
11 process said interferogram in such a way as to
12 measure the information content of at
13 least one of said side lobes; and
14 determining determine the polarization mode
15 dispersion of the fiber associating to
16 said measurement of said information con-
17 tent a probability density function repre-
18 sentative of the polarization mode disper-
19 sion [[(PMD)]] of the fiber in the form of
20 differential group delay.

1 8. (currently amended) The system as claimed in claim
2 7, characterized in that said device [[[27)]] comprises
3 a first module able to compute the deconvolution of said
4 at least one side lobe with said central peak so that said
5 deconvolution corresponds to the probability density of the differ-
6 ential group delay determined by the PMD of the fiber.

1 9. (currently amended) The system as claimed in claim 7
2 [[or 8]], characterized in that said device comprises
3 a second module able to determine an average of measure-
4 ments of said information content whereto said probability density
5 is to be associated.

1 10. (currently amended) The device for measuring the
2 polarization mode dispersion of an optical fiber into which optical
3 signals have been injected, comprising
4 an opto-electronic module [[[37)]] able to convert the
5 optical signals into electrical signals;
6 a display device [[[35)]] able to generate an interfero-
7 gram comprising at least a central peak and two side lobes having a
8 determined information content; characterized by
9 a control unit [[[30)]] able to
10 measure the information content of at least one
11 of said two side lobes; and

12 ~~determining~~ determine the polarization mode
13 dispersion of the fiber associating to
14 said measurement of said information con-
15 tent a probability density function repre-
16 sentative of the polarization mode disper-
17 sion ~~[[PMD]]~~ of the fiber in the form of
18 differential group delay.

1 11. (currently amended) The device as claimed in claim
2 10, characterized in that it comprises

3 a first program module able to compute the deconvolution
4 of said at least a side lobe with said central peak so that said
5 deconvolution corresponds to the probability density of the differ-
6 ential group delay determined by the PMD of the fiber.

1 12. (currently amended) The device as claimed in claim
2 10 ~~[[or 11]]~~, characterized in that it comprises

3 a second program module able to determine an average of
4 measurements of said information content whereto said probability
5 density is to be associated.